(first worksheet) Genetics Practice Probs Answers

1. Tt x tt

	T	t
t	Tt	tt
t	Tt	tt

1 tall : 1 dwarf.

2. Tt x Tt

	T	t
T	TT	Tt
t	Tt	tt

3 tall : 1 dwarf.

3. II x ii

	I	I
i	Ii	Ii
i	Ii	Ii

100% inflated

4. ii x ii

	i	i
i	ii	ii
i	ii	ii

100% constricted.

5. Tt x tt

	t	
t	Tt	tt
t	Tt	tt

would have to be hetero. to be tall to get the recessive

6. Rr x rr

	R	r
r	Rr	rr
r	Rr	rr

probability is $\frac{1}{2}$

7. Ff x Ff

	F	f
F	FF	Ff
f	Ff	ff

8. SsBb x ssbb

	S	s
B	SB	sB
b	Sb	sb

	s	s
b	Sb	Sb
b	Sb	Sb

	SB	sB	Sb	sb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb

Short, black : 1 long, black : 1
Short, red : 1 long, red : 1

7. Short, black : 9
Short, red : 3
long, black : 3
long, red : 1

10) BbEe × Bbee

	B	b
E	BE	bE
e	Be	be

	B	b
e	Be	be
e	Be	be

	BE	bE	Be	be
e	BBEe	BbEe	BBee	Bbee
e	BBEe	BbEe	BBee	Bbee
e	BbEe	bbEe	Bbee	bbee
e	BbEe	bbEe	Bbee	bbee

black (E) : 8 reduced : 1
yellow (e) : 8 1

1) a) $C^YC^Y \times C^BC^B$

	C^Y	C^Y
C^B	C^YC^B	C^YC^B
C^B	C^YC^B	C^YC^B

100% tort.

b) $C^YC^B \times C^YC^Y$

	C^Y	C^B
C^Y	C^YC^Y	C^YC^B
C^Y	C^YC^Y	C^YC^B

c) $C^YC^B \times C^BC^B$

	C^Y	C^B
C^B	C^YC^B	C^BC^B
C^B	C^YC^B	C^BC^B

2) a) codominance
b) $S^TS^\circ \times S^TS^\circ$

	S^T	S°
S^T	S^TS^T	$S^\circ S^T$
S°	$S^\circ S^T$	$S^\circ S^\circ$

1 two prong : 2 mix : 1 one prong

3) $S_p^T S_p^\circ \times S_p^T S_p^\circ$

	S_p^T	S_p°
S_p^T	$S_p^T S_p^T$	$S_p^T S_p^\circ$
S_p^T	$S_p^T S_p^T$	$S_p^T S_p^\circ$

1 two prong, purp : 1 mix, purp : 1 two, yellow : 1 mix, yella

15

	X^B	X^B
X^Y	X^BX^Y	X^BX^Y
Y	X^BY	X^BY

B/c they have "Y" chromosome, so they can't have 2 alleles on the same chromosome.

6

	X^B	X^Y
X^B	X^BX^B	X^BX^Y
Y	X^BY	X^YY

1 black female : 1 calico female : 1 black male : 1 yellow male

17

	X_D^B	X_d^B
X_D^Y	$X_D^BX_D^Y$	$X_D^BX_d^Y$
Y	X_D^BY	X_d^BY

2 "normal" not deaf calico female : 1 black normal hearing male : 1 black deaf male.

18 $Ss \times Ss$

	S	s
S	SS	Ss
s	Ss	ss

Ss dead!

2 "spinning" : 1 normal.

9

	I^B	i
I^B	I^BI^B	I^Bi
i	I^Bi	ii

50/50

or

	I^B	I^B
I^A	I^AI^B	I^AI^B
i	I^Bi	I^Bi

50/50

or

	I^B	i
I^A	I^AI^B	I^Ai
i	I^Bi	ii

75/25%

or

	I^B	I^B
i	I^Bi	I^Bi
i	I^Bi	I^Bi

100%

or

	I^B	I^B
I^B	I^BI^B	I^BI^B
I^B	I^BI^B	I^BI^B

100%

(C)

1) I-1, II-2, 3, 7, III-3
2) dominant
3) 6
4) 2
5) II-4 is uncle; III-2 is neice
I-2 is grandma; III-5 is grandson

(21) $I^A i \times I^B i$

	I^A	i
I^B	$I^A I^B$	$I^B i$
i	$I^A i$	ii

(22) $I^A i \times I^B i$

	I^A	i
I^B	$I^A I^B$	$I^B i$
i	$I^A i$	ii

no! b/c there's a 25% chance!!

(23) only type O b/c it doesn't have any antigens (A & B both have antigens)

(24) MAN #1

a)

	I^A	i
I^B	$I^A I^B$	$I^B i$
I^B	$I^A I^B$	$I^B i$

50/50

or

	I^A	I^A
I^B	$I^A I^B$	
I^B		

0%

or

	I^A	i
I^B	$I^A I^B$	$I^B i$
i	$I^A i$	ii

25%

could be...

man #2

b) X^1Y - can only pass this to his daughters!

* could be any of them b/c mom must be a carrier, so 50/50 shot she passes it onto her son.